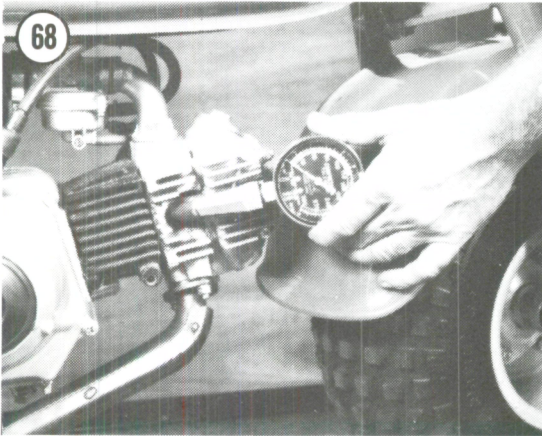


If a low reading is obtained it can be caused by one or more of the following faulty items:

- a. A leaking cylinder head gasket.
- b. Incorrect valve clearance.
- c. Valve leakage (burned valve face).
- d. Worn or broken piston rings.

If the head gasket is okay, perform a wet test to determine which other component is faulty. Pour about one teaspoon of engine oil through the spark plug hole onto the top of the piston. Turn the engine over once to clear the oil, then take another compression reading. If the compression increases significantly, the valves are good but the piston rings are defective. If compression does not increase, the valves require servicing. A valve could be hanging open but not burned or a piece of carbon could be on a valve seat.

Install the spark plug and connect the spark plug lead.



SPARK PLUG

Selection

Spark plugs are available in various heat ranges, hotter or colder than the plugs originally installed at the factory.

Select a plug of the heat range designed for the loads and conditions under which the ATC will be run. Use of incorrect heat ranges can cause a seized piston, scored cylinder wall or a damaged piston crown.

In general, use a hot plug for low speeds and low temperatures. Use a cold plug for high speeds, high engine loads and high temperatures. The plug should operate hot enough to burn off unwanted deposits, but not so hot that it is damaged or causes preignition. A spark plug of the correct heat range will show a light tan color on the portion of the insulator within the cylinder after the plug has been in service.

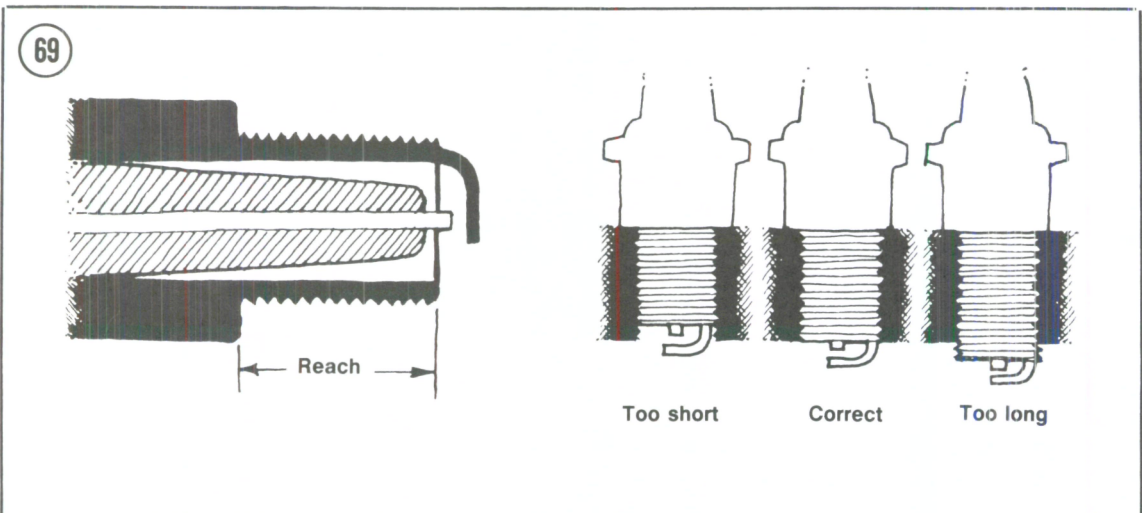
The reach (length) of a plug is also important. A longer than normal plug could interfere with the piston, causing permanent and severe damage; refer to Figure 69. Refer to Table 5 for recommended spark plug types.

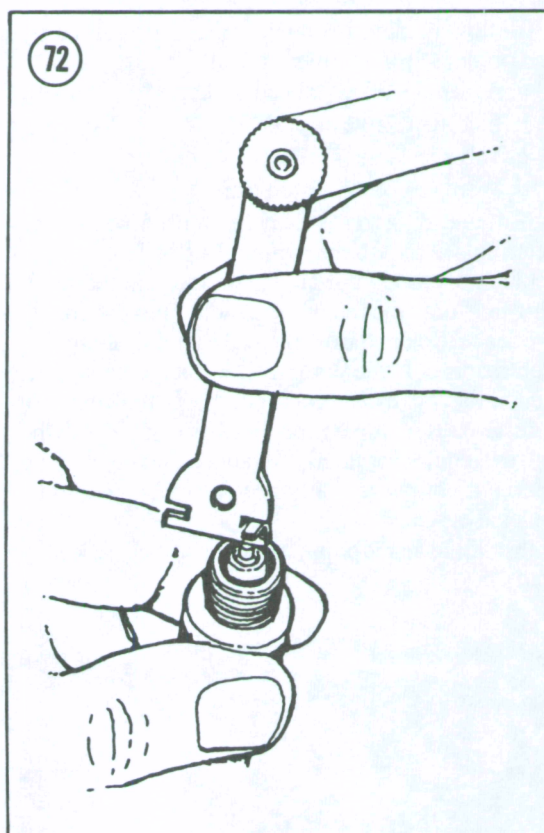
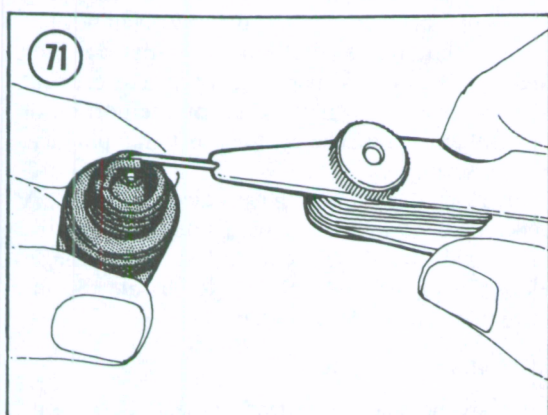
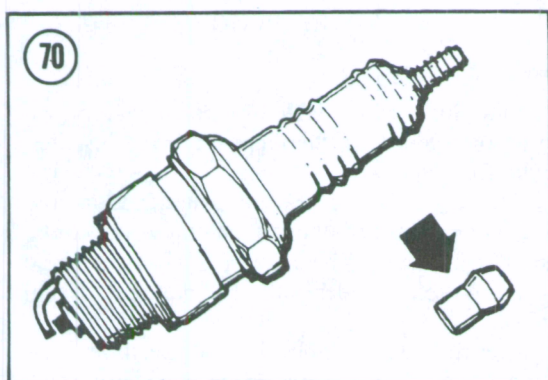
Removal and Cleaning

1. Grasp the spark plug lead as near the plug as possible and pull it off the plug. If it is stuck to the plug, twist it slightly to break it loose.
2. Blow away any dirt that has accumulated in the spark plug well.

CAUTION

The dirt could fall into the cylinder when the plug is removed, causing serious engine damage.





3. Remove the spark plug with an 18 mm spark plug wrench.

NOTE

If the plug is difficult to remove, apply penetrating oil such as WD-40 or Liquid Wrench around the base of the plug and let it soak in about 10-20 minutes.

4. Inspect the plug carefully. Look for a broken center porcelain, excessively eroded electrodes and excessive carbon or oil fouling. If any of these problems are present, replace the plug. If deposits are light, the plug may be cleaned in solvent with a wire brush or cleaned in a special spark plug sandblast cleaner. Regap the plug as explained in this chapter.

Gapping and Installation

A spark plug should be carefully gapped to ensure a reliable, consistent spark. You must use a special spark plug gapping tool and a wire feeler gauge.

1. Remove the new spark plug from its box. *Do not* screw on the small piece that is loose in the box (Figure 70); it is not used.

2. Insert a wire feeler gauge between the center and side electrode of each plug (Figure 71). The correct gap is 0.6-0.7 mm (0.024-0.028 in.). If the gap is correct, you will feel a slight drag as you pull the wire through. If there is no drag or the gauge won't pass through, bend the side electrode with a gapping tool (Figure 72) to set the proper gap.

3. Put a small drop of oil or aluminum anti-seize compound on the threads of the spark plug.

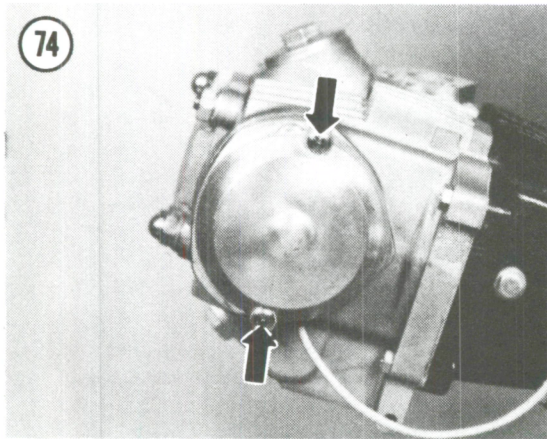
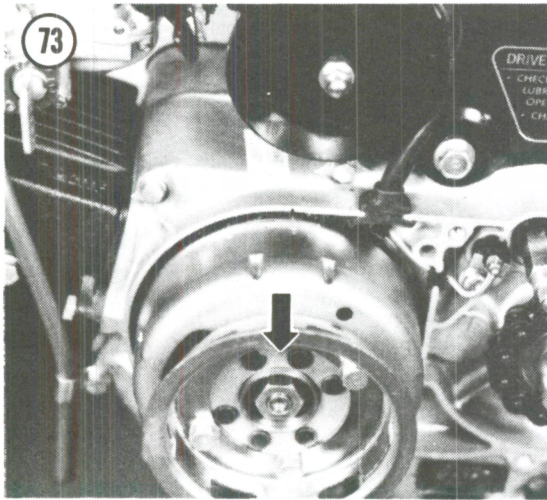
4. Screw the spark plug in by hand until it seats. Very little effort is required. If force is necessary, you have the plug cross-threaded; unscrew it and try again.

5. Use a spark plug wrench and tighten the plug an additional 1/4 to 1/2 turn after the gasket has made contact with the head. If you are installing an old, regapped plug and reusing the old gasket, only tighten an additional 1/4 turn.

NOTE

Do not overtighten. This will only squash the gasket and destroy its sealing ability.

6. Install the spark plug lead; make sure it is on tight.



Reading Spark Plugs

Much information about engine and spark plug performance can be determined by careful examination of the spark plug. This information is more valid after performing the following steps.

1. Ride the ATC a short distance at full throttle in any gear.
2. Turn the ignition switch to OFF before closing the throttle and simultaneously shift to NEUTRAL; coast and brake to a stop.
3. Remove the spark plug and examine it. Compare it to the illustrations in Chapter Two:
 - a. If the insulator is white or burned, the plug is too hot and should be replaced with a colder one.
 - b. A too-cold plug will have sooty or oily deposits ranging in color from dark brown to black. Replace with a hotter plug and check for too-rich carburetion or evidence of oil blow-by at the piston rings.

- c. If the plug has a light tan or gray colored deposit and no abnormal gap wear or electrode erosion is evident, the plug and the engine are running properly.
- d. If the plug exhibits a black insulator tip, a damp and oily film over the firing end and a carbon layer over the entire nose, it is oil fouled. An oil-fouled plug can be cleaned, but it is better to replace it.

CONTACT BREAKER POINT IGNITION (ATC70, ATC90, 1979-1980 ATC110)

The following procedures describe breaker point adjustment and ignition timing. Breaker point replacement is described in Chapter Seven.

Gap Adjustment

The contact breaker point assembly is located on the left-hand end of the crankshaft next to the alternator on ATC70 models. On ATC90 and ATC110 models, the contact breaker point assembly is attached to the left-hand end of the camshaft in the cylinder head.

Contact breaker point adjustment is basically the same on all models. Where differences occur they are identified.

1. Place the ATC on level ground and set the parking brake or block the wheels so the vehicle will not roll in either direction.
2. Shift the transmission into NEUTRAL.
3. Remove the spark plug – this will make it easier to rotate the engine.
- 4A. On ATC70 models, perform the following:
 - a. Remove the recoil starter and left-hand crankcase (alternator) cover as an assembly.
 - b. Remove the bolts securing the recoil starter ring (**Figure 73**) and remove the ring from the alternator rotor.
- 4B. On ATC90 and ATC110 models, remove the screws (**Figure 74**) securing the ignition cover and remove the cover and the gasket. Remove the timing inspection cover on the left-hand crankcase cover.
5. Rotate the crankshaft with the nut on the alternator rotor counterclockwise until the point gap is at the maximum opening.
6. Insert a flat feeler gauge and measure the gap. The gap should be 0.3-0.4 mm (0.012-0.016 in.).
7. If the gap is not within these limits, loosen the contact breaker point attachment screw(s). Refer to A, **Figure 75** for ATC70 models or A, **Figure 76** for ATC90 and ATC110 models. Insert a screwdriver into the pry point (B, **Figure 75** or B, **Figure 76**) and move the point assembly until the gap is correct. Tighten the screw(s) securely.

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